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Phytochemical and antibacterial properties of fermented *Chrysophyllum albidum* cotyledons on methicillinresistant *Staphylococcus aureus* and *Pseudomonas aeruginosa*

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The antibacterial activity of extracts from various parts of *Chrysophyllum albidum* against different virulent bacteria has been carried out due to its high usage folk medicine, but no investigation on the fermented seed. This work is aimed at determining the phytochemical and antibacterial properties of methanol extract of fermented cotyledons of *Chrysophyllum albidum* against methicillin-resistant *Staphylococcus aureus* and *Pseudomonas aeruginosa*. Pulverized *C. albidum* cotyledons were fermented aerobically and spontaneously through Solid State Fermentation (SSF), Semi-Solid State Fermentation (sSF) and Liquid State Fermentation (LSF) while the unfermented (UF) served as control. The physicochemical and phytochemical properties of the fermented cotyledons were determined quantitatively. The extracts were assayed for antibacterial properties using the broth dilution method. During fermentation, the temperature increased significantly ($p \le 0.005$) from 25 ± 0.00 to 39.3 ± 0.47 oC with a significant difference of 4.7 ± 0.04 (unfermented) and $3.8 \pm 0.08 - 6.3 \pm 0.80$ pH for the fermenter. The Total titratable acidity (TTA) decreases significantly as fermentation progresses. There was a significant increase in the flavonoids, Trypsin Inhibitor factors, and Phenol in comparison with the control. The other phytochemical properties (Phytic acid, Terpenoids, Tannin, Alkaloids, and Oxalate) were significantly reduced. The Minimum Inhibitory Concentration (MIC) of the methanol extracts of UF, SSF, SSF, and LSF seeds on Methicillin-resistant *Staphylococcus aureus* and *Pseudomonas aeruginosa* range between 12.5-50 mg/ml. It can, therefore, be concluded that fermented cotyledons of *C. albidum* pose an inhibitory effect on methicillin-resistant *Staphylococcus aureus* and *Pseudomonas aeruginosa*.

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